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TAPE APPLICATOR

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9 Claims

ABSTRACT OF THE DISCLOSURE

A device for applying a predetermined length of adhesive tape to a surface, comprising: a rotatable member carrying a roll of tape, tape severing means, and a reciprocating member; said reciprocating member carrying a tape applying element and being movable by said rotatable member; and means for rotating the rotatable member.

This invention relates to tape applying devices, and more particularly to a device for automatically applying a predetermined length of adhesive tape from roll stock to a surface.

Tape applying devices can be used for many purposes such as applying marking tape, securing packages, and splicing articles.

For purposes of best illustrating this invention the tape applying device is shown employed in connection with a machine for splicing together adjacent ends of a pair of motion picture film strips. It should be understood, however, that this is only one application of the invention, and it can be employed for various purposes in connection with various different types of machines.

It is an object of the invention to provide a tape applying device of relatively simple design and construction which is capable of delivering a predetermined length of adhesive or pressure sensitive tape to surface.

A more specific object of the invention is the provision in a device of the type described, of a rotatable member carrying a roll of tape, a cutting element, and a reciprocating member which in turn carries a tape applying member and which reciprocates in response to the rotation of the rotating member to deliver a strip of tape to a surface.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

FIG. 1 is a front elevation, with portions of the structure removed, of a tape applying device embodying features of the invention;

FIG. 2 is a vertical section taken on line 2—2 of FIG. 1; and

FIGS. 3—8 are all front elevations of a portion of the structure illustrated in FIG. 1, but showing the elements in various positions of a complete operating cycle.

It will be understood that, for purposes of clarity, certain of the elements have been intentionally omitted from certain views where they are believed to be shown to better advantage in other views.

Turning now to the drawings for a better understanding of the invention, and particularly FIGS. 1 and 2, it will be seen that the device includes a supporting structure, indicated generally at 10, which includes a deck 12 and a housing, indicated generally at 14, within which may be mounted a motor and gear box driving mechanism, indicated generally at 16. As the principle and operation of the motor and/or gear box arrangement may be of a conventional character, the details of their construction are not illustrated in the drawings.

As best seen in FIG. 2, a motor or drive shaft 18 is disposed to project out of the housing 14, and mounted on the free end of shaft 18 is a preferably circular,

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relatively thin, flat, rotative plate member or disc, indicated generally at 20.

Projecting rearwardly from the central portion of member 20 is an integral boss or hub portion 22 having a central bore 24 extending therethrough to receive drive shaft 18. The member 20 may be secured on shaft 18 by means of a set screw 26.

Also mounted within the hub portion 22 of member 20 is an end of a horizontally disposed spindle 30 which projects outwardly from the front side or face of member 30. It will be noted that spindle 30 is disposed off center from bore 24, the axis of rotation of member 20, so that as member 20 rotates spindle 30 moves in a circular path eccentrically of the axis of rotation of member 30. The purpose of this will be explained later in the specification.

Mounted on spindle 30 is a spool 36 for carrying a roll of adhesive or pressure sensitive tape.

Still referring to FIG. 2, it will be seen that a relatively thin, narrow, elongated, vertical bar or control lever 40 is positioned outboardly adjacent the front face of member 30.

Lever 40 has intermediate its ends an elongated hole or slot 42 through which extends spindle 30 to form a floating pivotal connection between member 20 and lever 40.

At its upper end lever 40 is offset outboardly or forwardly, as at 44, to provide a space between the lever and member 20. At its upper and lower ends lever 40 is provided with holes 46 and 48, respectively.

Extending through upper hole 46 is one end of a horizontally disposed pin 50 on which is rotatably mounted, in the space between the lever and member 20, a cam wheel or roller 52.

At its opposite end pin 50 is pivotally connected to one end of a link 54, the opposite end of which is pivotally connected by a pin 56 to a portion of housing 14.

Link 54 serves to limit the movement of lever 40, so that as member 20 rotates, it translates to lever 40 through spindle 30 a variable reciprocating motion. This motion is also controlled by the cam action of roller 52 as hereinafter described. Link 54 is biased toward a fixed position, as seen in FIG. 1, by a wire spring 58 which engages a boss 59 on said housing 14.

At its lower end lever 40 carries a tape applying pressure type roller 60 which is mounted on a pin 62, one end of which is journaled in control lever to lower hole 48 and the other end of which is journaled in a recess 66 in the lower end of a relatively thin, narrow, elongated, vertical retaining bar 64 which is spaced outboardly or forwardly of and in generally parallel relation with control lever 40.

Bar 64 also has a central slot 68, through which spindle 30 extends, and an upper slot 69 through which pin 50 extends. Bar 64 serves to assist lever 40 in carrying tape applying roller 60 and also to carry one end of pin 50 which is connected to link 54. Another function of bar 64 is to retain tape spool 36 on spindle 30.

Bar 64 is removably secured in place by means of a locking bar 70 pivotally secured at its lower end by a pin 72 to an upper portion of retaining bar 64. The upper edge 73 of bar 70 is forceably engageable with in 50 to maintain the retaining bar in place. When it is necessary to replace the roll of tape T on spool 36 with a new roll, locking bar 70 may be rotated to disengage its upper edge 73 from pin 50. This permits retaining bar 64 to be moved upwardly, as permitted by slots 68 and 69 in bar 64, and the lower recess 66 of bar 64 can be disengaged from pin 62. This permits bar 64 to be lifted forwardly so the roll of tape can be replaced on spool 36. This operation is then reversed to lock the retaining bar back in place.

In initially threading the free end of the tape from